FINAL SITE INSPECTION PRIORITIZATION REPORT
FOR
BOULTER FARM AREA
CUMBERLAND, RHODE ISLAND

Prepared For:
U.S. Environmental Protection Agency
Region I
Office of Site Remediation and Restoration
John F. Kennedy Federal Building
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Work Order No. 11098-032-001-5036-70

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Cumberland, Rhode Island

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INTRODUCTION

The Roy F. Weston, Inc. (WESTON®) Superfund Technical Assessment and Response Team (START) was requested by the U.S. Environmental Protection Agency Region I (EPA Region I), Office of Site Remediation and Restoration to perform a Site Inspection Prioritization (SIP) of the Boulter Farm Area property at 290 Curran Road in Cumberland, Rhode Island. Tasks were conducted in accordance with the SIP scope of work and technical specifications provided by EPA Region I. *A Screening Site Inspection (SSI) Report for the Boulter Farm Area property was prepared by the Rhode Island Department of Environmental Management (RI DEM) in October 1989. Volatile organic compounds (VOCs), lindane, polychlorinated biphenyls (PCBs), and numerous metals were detected at elevated levels in soil, surface water, and sediment samples collected from the Boulter Farm Area.* On the basis of the information provided in the SSI report, the Boulter Farm Area SIP was initiated.

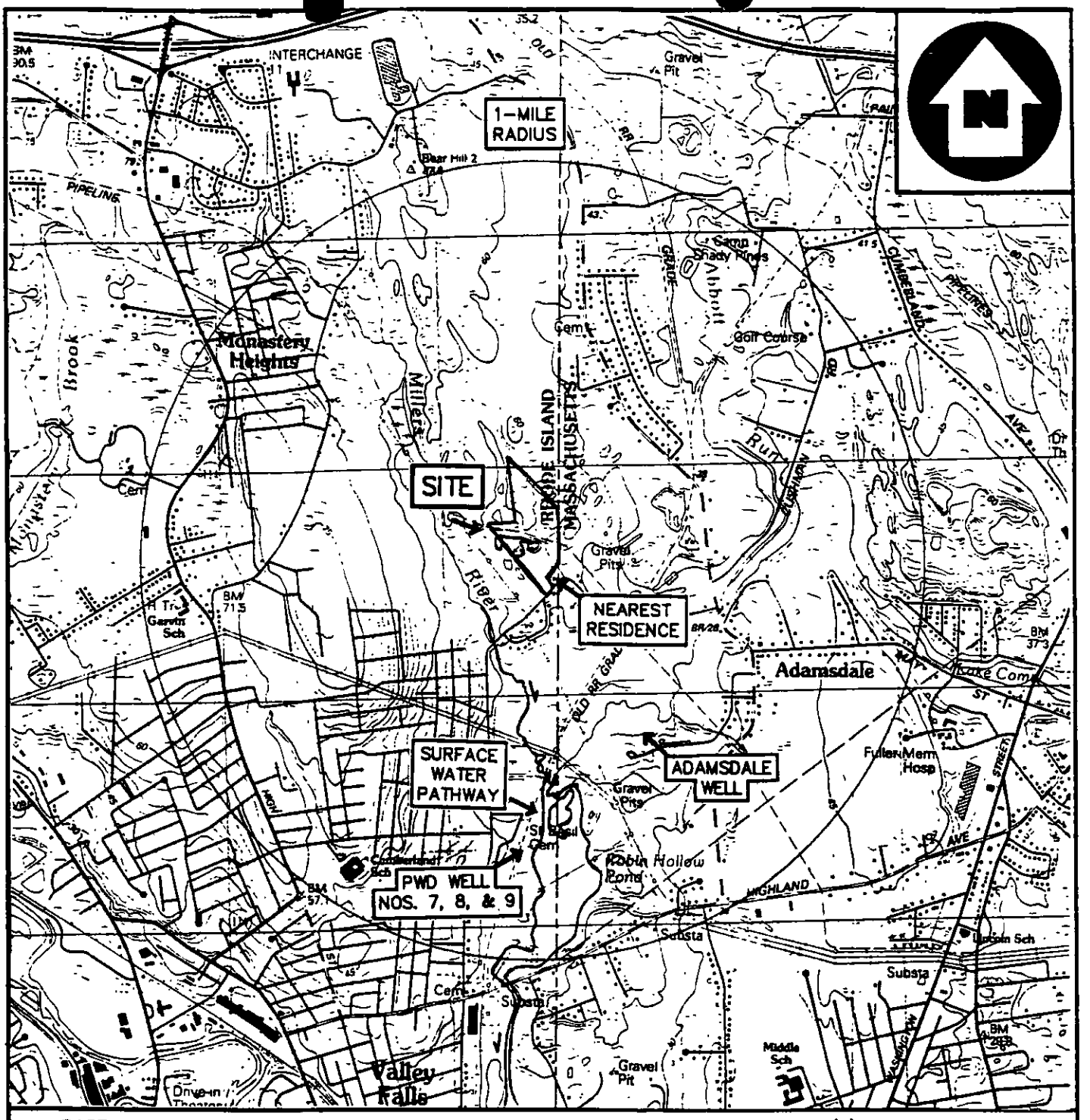
Background information used in the generation of this report was obtained through file searches conducted at the EPA Region I, RI DEM, telephone interviews with town officials, conversations with persons knowledgeable of the Boulter Farm Area property and conversations with other Federal, State, and local agencies.

This package follows the guidelines developed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, commonly referred to as Superfund. However, these documents do not necessarily fulfill the requirements of other EPA Region I regulations such as those under the Resource Conservation and Recovery Act (RCRA) or other Federal, State, or local regulations. SIPs are intended to provide a preliminary screening of sites to facilitate EPA Region I's assignment of site priorities. They are limitedefforts and are not intended to supersede more detailed investigations.

SITE DESCRIPTION

The Boulter Farm Area (BFA) is located at 290 Curran Road, in Cumberland, Providence County, Rhode Island at 41° 55 ′ 51.7 ″ North latitude and 71 ° 22 ′ 55.1 ″ West longitude (Figure 1). BFA, referred to as Plat No. 19, Lot Nos. 363, and 366 according to the Town of Cumberland Assessor's Office, encompasses 38 acres [1; 2; 3]. Lot Nos. 363 and 366 are currently owned by Joseph I. Ferreira, operator of JIF Investment. A large portion of Lot 363 is occupiedby an auto salvage yard operated by Advanced Auto Recycling, Inc. [4, p. 2]. The northern section of Lot 363 and all of Lot 366 are undeveloped wooded areas (Figure 2) [4, p. 13].

Note: Text which appears in italics indicates original portions of the Screening Site Inspection report (completed by RI DEM) which were either copied or paraphrased.



BASE MAP IS A PORTION OF THE FOLLOWING U.S.G.S. 7.5 X 15 MINUTE QUADRANGLE(S):
ATTLEBORO, MASSACHUSETTS–RHODE ISLAND, 1987 1:25,000

1 MILE 0.5 0 1

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

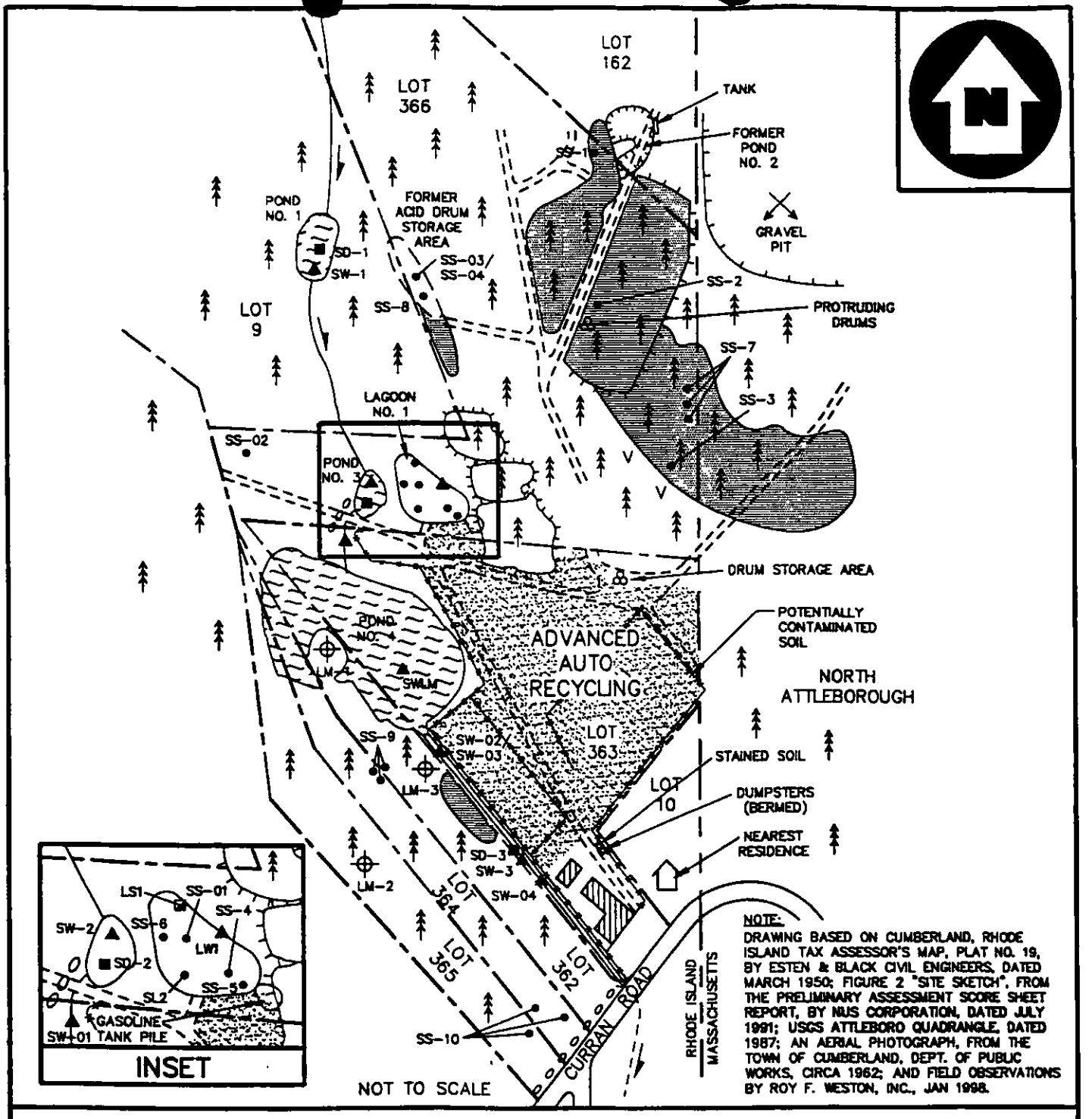
QUADRANGLE LOCATION

LOCATION MAP

BOULTER FARM AREA
290 CURRAN ROAD
CUMBERLAND, RHODE ISLAND

ROY F. WESTON, INC.
WESTON MANAGERS DESIGNERS/CONSULTANTS
REGION I SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

TDD	DRAWN	DATE
98-05-0158	K.J.C.	JUL 98
W.O. 11098-032-001-5036	FIGURE 1	



NOTE:
DRAWING BASED ON CUMBERLAND, RHODE ISLAND TAX ASSESSOR'S MAP, PLAT NO. 19, BY ESTEN & BLACK CIVIL ENGINEERS, DATED MARCH 1950; FIGURE 2 "SITE SKETCH", FROM THE PRELIMINARY ASSESSMENT SCORE SHEET REPORT, BY NUS CORPORATION, DATED JULY 1991; USGS ATTLEBORO QUADRANGLE, DATED 1987; AN AERIAL PHOTOGRAPH, FROM THE TOWN OF CUMBERLAND, DEPT. OF PUBLIC WORKS, CIRCA 1962; AND FIELD OBSERVATIONS BY ROY F. WESTON, INC., JAN 1998.

LEGEND

- GROUNDWATER SAMPLE LOCATION
- SOIL SAMPLE LOCATION
- SEDIMENT SAMPLE LOCATION
- SURFACE WATER SAMPLE LOCATION
- SLUDGE SAMPLE LOCATION
- SLOPE LINE (TICKS POINT DOWN SLOPE)
- FENCE
- DIRT ROAD
- SOLID WASTE DUMP
- PROPERTY BOUNDARY
- TOWN/STATE LINE
- BOULDERS (APPROX 5' APART)
- DRUMS
- WOODED AREA
- GRASSY AREA

SITE SKETCH

BOULTER FARM AREA
290 CURRAN ROAD
CUMBERLAND, RHODE ISLAND

ROY F. WESTON, INC.
WESTON
REGION I SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

TDD	DRAWN	DATE
98-05-0158	K.J.C.	JUL 98
W.O. 11098-032-001-5036	FIGURE 2	

The topography of the property changes from north to south. In the north, hills, excavation pits, plateaus, and bedrock outcrops dot the forested landscape. In the area of the salvage yard, there is a small ridge, otherwise a gentle slope was observed to the southwest towards Curran Road. The low-lying areas on the western side of the property are occupied by a series of interconnected ponds. Water from these ponds eventually flows south via an intermittent brook along the western border of the automobile salvage yard. There is a fence along the western, southern, and eastern boundaries of Lot 363, restricting access to the automobile salvage yard. There are no barriers preventing access to the northern portion of the property [4, p. 16, 17]. To the east, the property is abutted by a single residence along Curran Road, a large, wooded, undeveloped area, part of a field, and a gravel quarry owned by Curtis Sand and Gravel. The eastern boundary is also the Massachusetts and Rhode Island state border. Large wooded areas abut the property to the north and west. The property abuts Curran Road on the south [4, pp. 2, 3, 11, 12, 13; 5;].

An area containing stressed vegetation, which was believed to be a former acid drum storage area was located along the border of Lot 366 and Lot 9. This area, surrounded by a dense forest, was covered only with moss and a single small oak tree. Just south of the former acid drum storage area was a small former gravel pit that had subsequently been used as a solid waste dump, where refuse and a 55-gallon drum were observed protruding from the ground [4, pp. 18, 19].

An approximately 10,000-gallon former underground storage tank (UST) was located on the northeastern part of Lot 366, and possibly extends into Lot 162. To the east of the tank, a large area where an excavation had previously occurred was observed. To the west of the tank was a small gravel pit believed to be the former Pond No. 2. On both sides of the dirt road leading to the former Pond No. 2 area there appeared to be solid waste dumps. Layers of trash, scrap, and garbage were protruding out of the ground along a small hill. A number of drums were protruding from underneath a cluster of trees in the solid waste dump south of the road. Based on historical aerial photographs and the solid waste material protruding from the slope east of the field, it is likely that an open field extending south of this wooded area is an extension of the solid waste dump [4, p. 7-9, 20; 62]. The exact nature and extent of the solid waste disposed of in the solid waste dumps is not documented. It was undetermined how much of the solid waste dump extends into Massachusetts, due to the difficulties in determining the exact Rhode Island/Massachusetts border. The border is only marked on the southeast corner of the property, and is difficult to locate along the eastern edge of Lot 366 due to the dense brush.

Located north of the auto salvage yard, and north of Pond No. 4, was an area believed to be former Lagoon No. 1. The salvage yard is currently using former Lagoon No. 1 as a storage area Construction debris, automobile parts, a tractor trailer truck, batteries, asphalt, crushed drums, and scrap metal were stored in this area at the time of START's on-site reconnaissance [4, pp. 2, 4-5, 9-10].

Two buildings, involved in the auto salvage operation, a parking lot, and numerous rows of salvage vehicles were located on the southern portion of the property. Dirt roads extend northward from the auto salvage yard, and are purposely blocked with debris to prevent vehicular access to the auto salvage yard. North and west of the auto salvage yard, these dirt roads extend to different parts of the property [4, pp. 6, 10, 11].

OPERATIONAL AND REGULATORY HISTORY AND WASTE CHARACTERISTICS

The property was owned by the Boulter family (Samuel P. and Maria I.) from 1946 until 1983, when it was sold to Leo R. and Michele L. Fontaine. The Fontaines sold Lot 363 to Joseph Ferreira in 1983 and Lots 362, 364, and 365 to LM Nursing in 1985. In 1985, Lot 366 was divided from Lot 363 and purchased by JIF Property, Inc.

Mr. Samuel Boulter operated a pig farm at the property in the 1940s. In the 1950s, part of the property was excavated for sand and gravel. In the 1960s, Mr. Boulter demolished and stored junk cars at the property. He operated a solid waste dump on the property from the late 1960s until 1976. The exact size and location of the solid waste dump was not previously documented.

From 1968 to 1985, BFA was inspected by RI DOH numerous times. In addition, RI DEM/Department of Air and Hazardous Material (DAHM) inspected the property in September 1980, April 1981, and October 1985. EPA Region I personnel also inspected the property in October 1981.

Based on historical aerial photographs taken in 1965, landfilling with solid waste had occurred primarily on Lot 366 [62]. This information is consistent with observations made on the property on 15 December 1997 and 13 January 1998 by START personnel. *From 1970 to 1976, the solid waste dump was cited numerous times by the Rhode Island Department of Health (RI DOH), Division of Solid Waste Management, for the failure to provide daily cover. Furthermore, in 1970, RI DOH noted the solid waste dump was openly burning demolition waste. The solid waste dump has also been cited by the Massachusetts Department of Health (MA DOH) for solid waste violations.* This further supports that portions of the solid waste dumps extend over the Rhode Island/Massachusetts border, into MA DOH jurisdiction.

On 15 June 1976, RI DOH inspected the BFA and observed an area being used for the dumping of septage near the Rhode Island/Massachusetts state line. On 22 June 1976, RI DOH ordered Mr. Boulter to prevent further disposal of septage on the property.

On 1 February 1981, BFA was added to the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS). In the following months, a Preliminary Assessment (PA), which was completed on 1 June 1981, was conducted by EPA Region I personnel [61].

On 18 April 1981, two shallow paint sludge samples were collected from the solid waste dump by RI DEM personnel. The samples were analyzed by "Toxicant Extraction Procedure." Analysis of the leachate documented the presence of arsenic, barium, lead, mercury, and silver in the paint sludges [66].

At least five fires have been reported at the BFA property. Four of the fires were brush fires; however, the most recent reported fire occurred on 13 April 1981 and involved 25 to 30 steel and fiberboard barrels containing paint-like substances. One firefighter was hospitalized for chest pains after the incident but no clear connection was made between the symptoms and the materials involved in the fire.

Two old tanks and numerous corroded drums have been discovered at the property. The drums were discovered from 1980 through 1985 during RI DOH inspections and contained residual acids. In addition the Town of Cumberland received an anonymous letter in 1980 alleging that in approximately 1970, the Sayles Finishing Company had buried drums containing lacquer, acetone, acetate, and urethane in a gravel pit at the end of Curran Road. An investigation conducted in 1981 by RI DEM and the Pawtucket Water Supply Board was unable to determine whether the Sayles Finishing Company drums were buried on or near BFA.

From 1984 to 1986, W&H conducted a hydrogeological study for the Massachusetts Department of Environmental Quality Engineering (MA DEQE) in an attempt to determine the source of persistent (from 1980 to 1986) low-level VOC contamination of the North Attleboro Water Department (NAWD) Adamsdale Well. As part of the study, a sediment sample was collected from Lagoon No. 1 on 28 December 1984 [7, p. 4]. The sample was analyzed for VOCs and base, neutral, and acid extractable compounds (BNAs), but no VOCs or BNAs were detected in the sample [17, p. 43].

Lagoon No. 2 was discovered during a site investigation by RI DEM in 1985. The lagoon had an approximate area of 20,000 square feet (ft^2) and a depth of 2 feet. In 1986, Lagoon No. 2 was reportedly located during a Whitman and Howard, Inc (W&H) groundwater study, but the lagoon was located east of the BFA property in North Attleboro, Massachusetts. In 1987, RI DEM observed that the lagoon had been covered with gravel. A historical aerial photograph, circa 1962, obtained by START personnel depicts the location of Lagoon No. 1, but not Lagoon No. 2.

In 1985, RI DOH collected and analyzed a single surface water sample from the intermittent drainage ditch west of the auto salvage yard. The analytical results documented the presence of chlorinated solvents. As a result, RI DEM/DAHM collected and analyzed a sludge and water sample from Lagoon No. 1 for VOCs, pesticides, PCBs, and metals. VOCs, pesticides, PCBs, and metals were detected in at least one of these samples [7, p. 20]. Additional information pertaining to these investigations is located in the surface water pathway section.

In April 1987, as part of the SSI, RI DEM personnel collected four surface water samples, four sediment samples, and 10 soil samples. Surface water and sediment samples were collected and analyzed for VOCs, metals, and total organic carbon (TOC). Methylene chloride was detected in one surface water sample and mercury was detected in one sediment sample [7, p. 5]. Soil samples were analyzed for pesticides, PCBs, metals and oil & grease, and these parameters were detected in numerous samples [7, p. 23]. Additional information pertaining to this investigation is located in the surface water and soil exposure pathway sections. In 1989, RI DEM completed an SSI of the property.

Following the SSI sampling activities, LM Nursing Services, Inc., the owners of Lots 362, 364, and 365, retained Environmental Resource Associates (ERA) to perform an environmental site assessment of their portion of the BFA. In June 1987, ERA installed three groundwater monitoring wells on Lots 362, 364, and 365. In July 1987, ERA collected three groundwater samples (LM-1

to LM-3), and one surface water sample (Pond No. 4). These samples were analyzed for VOCs and methylene chloride was detected in all four samples and toluene was detected in LM-2. The wells were resampled in August 1987, and no VOCs were detected.

In August 1990, EPA Region I determined that Lots 362, 364, and 365 should not be included as part of the BFA property, based on findings from the 1989 SSI completed by the RI DEM/DAHM [2].

On 16 August 1991, the NUS Corporation/Field Investigation Team (NUS/FIT) re-evaluated the data from the SSI of the BFA for EPA Region I. No sampling was conducted at this time [8, p. 24].

On 8 May 1995, four soil samples and four surface water samples were collected by RI DEM personnel from BFA as part of their site monitoring program. The samples were analyzed for VOCs, semivolatile organic compounds (SVOCs), pesticides/PCBs, and 13 Priority Pollutant metals. Methylene chloride, PCBs, and metals were detected in soil samples and lead was detected in a surface water sample [41, pp. 1, 2, 7, 12, 17, 22, 27, 32, 37; 42]. Additional information pertaining to this investigation is located in the Surface Water and Soil Exposure pathway sections of this report.

On 15 December 1997, START personnel conducted an on site reconnaissance of the BFA. START inspected the property and documented current conditions [4, pp. 2-13]. On 13 January 1998, START conducted a second on-site reconnaissance to determine the source locations relative to the property boundaries [4, pp. 14-21].

The auto salvage operation performed by Advanced Auto Recycling produces "minimal" waste, including waste oil, gasoline, antifreeze, and other automotive fluids [3]. Annually, approximately 40% of all the vehicles are removed from the property and crushed to make room for incoming vehicles [4, p. 2]. Fluids are removed from each vehicle when it arrives on the property, separated, and stored in 55-gallon drums in the northern portion of the auto salvage yard [4, pp. 2, 6]. This drum storage area contained 31 55-gallon drums stored on the ground surface, without cover or secondary containment. Rainwater had collected on the top of most drums, and only a few had labels to identify their contents. One drum was tipped on its side and leaking its content onto the ground. Photoionization detector (PID) readings taken near 5 to 7 of the drums registered between 200 to 300 units above background [4, pp. 6, 7]. Reportedly, once a year, these drums are removed for disposal by Western Disposal of Pawtucket, RI [3; 4, p. 2]. Two dumpsters, one filled with transmission parts and one with engine parts, were located outside, north of the east side of the auto salvage operation buildings. The uncovered, open, dumpsters were located on a concrete pad surrounded by a 5-inch concrete berm. The bermed area contained an oily liquid. Soil outside of the bermed area was stained [4, p. 20].

Table 1 presents identified structures or areas on the Boulter Farm Area property that are documented or potential sources of contamination, the containment factors associated with each source, and the relative location of each source.

Table 1

Source Evaluation for Boulter Farm Area

Source Area	Containment Factors	Spatial Location
Lagoon No. 1	Soil cover of unknown thickness	South-central portion of Lot No. 366.
Drum Storage Area	None	Northeast portion of Lot No. 363.
Solid Waste Dumps	Incomplete soil cover of undocumented thickness.	East-central section of Lot No. 366.
Former Acid Drum Storage Area	None	Along the western boundary of Lot No. 366
Bermed Dumpster Area	A concrete pad with an approximate 5 inch berm	In southeast corner of auto salvage yard.
Gasoline Tank Pile	None	Adjacent to east side of Lagoon No. 1
10,000 and 1,000 gallon tanks	None	1,000-gallon tank no longer on property, 10,000-gallon tank located adjacent to the former pond No. 2
Advanced Auto Recycling	Berm around dumpsters.	Majority of Lot No. 363.
Acid Drums	Unknown	Along the western boundary of Lot No. 366

[4, pp. 4-19; 7, pp. 1-4]

Table 2 summarizes the types of potentially hazardous substances which have been disposed, used, or stored on the Boulter Farm Area property.

Table 2

Hazardous Waste Quantity for Boulter Farm Area

Substance	Quantity or Volume/Area	Years of Use/Storage	Years of Disposal	Source Area
Solid Waste	Approximately 6 acres.	Late 1960s to 1976	Late 1960s to 1976	Solid Waste Dumps
Waste Automotive Fluids (including waste-oil and anti-freeze)	33 drums, two Dumpsters, and approximately 10 acres of soil	1983 to present	1983 to present	Drum Storage Area, Bermed Dumpsters, and Advanced Auto Recycling Soil
Residual Acid	Unknown	Unknown	Unknown	Former Acid Drum Storage Area, Acid Drums
PCBs	20,000 ft^2 and approximately 6 acres	Unknown	Unknown	Lagoon No. 1 and Solid Waste Dumps
Chlorinated Solvents	Unknown	Unknown	Unknown	Lagoon No. 1

[4, pp. 4-19; 7, pp. 1-4, 16-24]

There are eight sites located in Cumberland, Rhode Island and four sites located in North Attleboro, Massachusetts that are included in the CERCLIS database. There are four facilities in Cumberland and one facility in North Attleboro that are listed in Resource, Conservation, and Recovery Information System (RCRIS). Advanced Auto Recycling, the only active facility located on the BFA property, is not listed in RCRIS [61; 65].

WASTE/SOURCE SAMPLING

From 1984 to 1986, W&H conducted a hydrogeological study for MA DEQE in an attempt to determine the source of persistent (since 1980) low-level VOC contamination of the North Attleboro Adamsdale Well. As part of the study, a sediment sample was collected from Lagoon No. 1 on 28 December 1984 [7, p. 4]. The sample was analyzed for VOCs and BNAs, but no VOCs or BNAs were detected in the sample [17, p. 43].

In 1985, RI DEM/DAHM collected and analyzed a sludge and water sample from Lagoon No. 1 for VOCs, pesticides, PCBs, and metals. VOCs, pesticides, PCBs, and metals were detected in these samples. Headspace measurements for VOCs were conducted on surface water samples collected just below the surface of Lagoon No. 1. Results indicated 40 to 60 ppm total VOCs (benzene equivalent units). The available reference does not contain details regarding analytical results.

In April 1987, RI DEM personnel collected a total of 10 shallow or deep soil samples (SS-1 to SS-10) as part of the SSI for the property. *Soil samples were analyzed for oil & grease, pesticides, PCBs, and metals (by Extraction Procedure Toxicity (EP Tox) methods). SS-10 was selected as*

a background sample based on its location remote from any sources and relatively low concentrations of hazardous substances. A shallow sample of oily sludge (SS-1) was collected from an oil-stained area of the easternmost solid waste dump, shallow soil sample (SS-7) was collected from the easternmost solid waste dump, and shallow soil samples (SS-8 and SS-8 DUP) were collected from the Former Acid Drum Storage Area. Concentrations of metals in the EP Tox leachate from these samples were significantly greater than those in the reference sample, SS-10 [7, pp. 14, 23].

On 8 May 1995, four shallow soil samples (SS-01 through SS-04) were collected by RI DEM personnel as part of their site monitoring program. The samples were analyzed for VOCs, SVOCs, pesticides/PCBs, and 13 Priority Pollutant metals. A soil sample collected at depths of 2 feet or less bgs from the Lagoon No. 1 area (SS-01) contained elevated levels of PCBs, and metals (copper, lead, nickel). Samples collected from the former acid drum storage area (SS-03 and SS-04) contained elevated levels of lead [41, pp. 1, 2, 7, 12, 17, 22, 27,32, 37; 42]. Shallow soil sample SS-02, collected from the western portion of the property in a presumed undisturbed area, was selected as the reference sample. Table 3 lists compounds detected in samples collected during the SSI from the solid waste dumps.

Table 3

Solid Waste Dump Sample Summary: Boulter Farm Area
Source Samples Collected by RI DEM in 1987

Compound/ Element	Sample Number	Sample Concentration	Reference Concentration	Comments
PESTICIDES/PCBs				
Aroclor-1242	SS-1	24,000 ppb	1,000 U ppb	24 × SQL
Aroclor-1260	SS-1	28,000 ppb	1,000 U ppb	28 × SQL
INORGANICS				
Arsenic	MCS	0.026 mg/L	NA	NA
Barium	SS-1	1,300 ppb	500 U ppb	2.6 × SDL
Chromium	MCS	0.29 mg/L	NA	NA
Lead	SS-1	170 ppb	50 U ppb	3.4 × SDL
Mercury	WS	0.0003 mg/L	NA	NA
Silver	WS	0.02 mg/L	NA	NA

U = Not detected; detection limit listed.
ppb = Parts per billion.
mg/L = Milligrams per liter
MCS = Mulit-colored Sludge
SQL = Reference Sample Quantitation Limit.
SDL = Reference Sample Detection Limit.
NA = Not applicable; source sample.
WS = White Sludge

[7, pp. 14, 21-24]

Table 4 summarizes source samples collected from Lagoon No. 1 by RI DEM during the 1987 SSI sampling and the 1995 site monitoring program.

Table 4

Lagoon No. 1 Sample Summary: Boulter Farm Area
Source Samples Collected by RI DEM in 1987 and 1995

Compound/ Element	Sample Number	Sample Concentration	Reference Concentration	Comments
VOCs				
Trans-1,2-dichloroethylene	SS-4	6,000 ppb	1,000 U ppb	6.0 × SQL
1,1,1-Trichloroethane	SS-4	5,000 ppb	1,000 U ppb	5.0 × SQL
Trichloroethylene	SS-4	7,000 ppb	1,000 U ppb	7.0 × SQL
Tetrachloroethylene	SS-4	2,000 ppb	1,000 U ppb	2.0 × SQL
Toluene	SS-4	2,000 ppb	1,000 U ppb	2.0 × SQL
Xylene	SS-4	9,000 ppb	1,000 U ppb	9.0 × SQL
PESTICIDES/PCBs				
Lindane	SS-4	0.003 ppb	0.001 U ppb	3.0 × SQL
Aroclor-1242	SS-4	8,000 ppb	1,000 U ppb	8.0 × SQL
Aroclor-1248	SS-01	93 ppb	1 U ppb	93 × SQL
Aroclor-1254	SS-01	93 ppb	1 U ppb	93 × SQL
Aroclor-1260	SS-4	9,000 ppb	1,000 U ppb	9.0× SQL
INORGANICS				
Copper	SS-01	51,000 ppb	7,000 ppb	7.3 × SDL
Lead	SS-01	218,000 ppb	10,000 U ppb	22 × SDL
Nickel	SS-01	19,000 ppb	6,000 ppb	3.2 × SDL

U = Not detected; detection limit listed.
ppb = Parts per billion.
SQL = Sample Quantitation Limit.
SDL = Sample Detection Limit.

[7, pp. 14, 21-24]

Table 5 summarizes source samples collected from the Former Acid Drum Storage Area by RI DEM during the 1987 SSI sampling, and the 1995 site monitoring program.

Table 5

Former Acid Drum Storage Area Sample Summary: Boulter Farm Area Source Samples Collected by RI DEM in 1987 and 1995

Compound/ Element	Sample Number	Sample Concentration	Reference Concentration	Comments
INORGANICS				
Cadmium	SS-8	0.01 mg/L	0.005 U mg/L	2 × SDL
Lead	SS-04	16 mg/kg	10 U mg/kg	15 × SDL

U = Not detected; detection limit listed. mg/L = Milligrams per liter
SDL = Sample Detection Limit.

[7, pp. 14, 21-24; 41, pp. 7, 17]

The results from two source sampling events document that hazardous materials were at one time disposed of to three sources on the property. VOCs, pesticides, PCBs, and metals were detected in the source samples. Of the sources that contain hazardous substances, none have containment features. Based on the lack of containment features, it is likely that some the hazardous materials from these sources have migrated to groundwater and/or surface water. No source sampling was conducted by START personnel.

GROUNDWATER PATHWAY

The geology of the property differs on the northern and southern portions. The general boundary between the two areas is near Pond No. 3, adjacent to the auto salvage yard. The northern part of the property consists of glacial till that ranges from 0 to 10 feet thick. Below the till, this area is characterized by Wamsutta Formation bedrock (red conglomerate, sandstone, and shale, very irregular color, bedding and degree of sorting), with occasional outcrops at the ground surface. The southern part is composed of outwash deposits ranging from 10 to 40 feet thick, which overlie Pondville Conglomerate and Rhode Island Formation bedrock (grey to black sedimentary rocks, including beds of conglomerated, sandstone, shale, black shale, and coally material). Transmissivity in the area is approximately 13,000 ft/day. No bedrock formation mapped within 4-radial miles of the property exhibits karst characteristics

Depth to groundwater on the property ranges from 0 to 16 feet below ground surface (bgs) [7, p. 6]. *Regional groundwater flow appears to be southerly towards Robin Hollow Pond and ultimately discharges to the Blackstone River. The BFA is located approximately 500 feet from an unnamed valley aquifer which straddles the Rhode Island-Massachusetts border. The property lies within the aquifer's drainage basin (Blackstone River Basin). The aquifer generally follows the path of Abbott Run flowing from north to south. The unnamed aquifer is approximately 2,000 feet wide, but the drainage basin ranges between approximately 3,000 feet wide at Robin Hollow Pond to approximately 10,000 feet wide at the beginning of Abbott Run.*

All or part of the following Rhode Island and Massachusetts towns are located within 4-radial miles of this property: Attleboro (population 38,383), Central Falls (population 17,900), Cumberland (population 29,038), Lincoln (population 18,045), North Attleboro (population 25,530), North Providence (population 32,090), Pawtucket (population 72,000), Plainville (population 7,500), and Seekonk (population 12,776) [44-52].

The town of Pawtucket, located directly south of Cumberland, has a blended system that comes from four sources. The main source for the Pawtucket Water Department (PWD) is Happy Hollow Pond, which is located along the 15-mile downstream pathway and provides 95.6% of the system's water. The other three sources are wellfields comprised of eight overburden wells, Pawtucket Wells Nos. 2 to 9. These wells are used to supplement the surface water supply during the summer months. Pawtucket Wells No. 4 and 5 are not in use due to lack of demand. This system supplies water to approximately 114,000 residents in Pawtucket, Central Falls, and Cumberland [10; 11]. The service population was apportioned to sources based on their contributions to the system.

The Cumberland Water Department is a blended public drinking water system with four sources. These sources include two wellfields, a surface water intake, and water purchased and pumped from the PWD. The two wellfields, the Manville Wellfield and the Abbott Run Wellfield, each contain two overburden wells, and are only used during the summer to supplement the surface water supply. The Abbott Run Wells are only used in extreme emergencies, because Cumberland considers them non-cost effective, and have not been used for the last several years. The surface water source, Sneech Pond, is also located northwest of the property but is not located on the 15-downstream mile pathway. Water purchased from the PWD makes up more than 40% of water entering the system. PWD water is pumped up to Cumberland to holding tanks, where it is combined with water from other sources in the system. This system supplies water to an estimated 24,000 residents. Abbott Run Wellfield is the system's only source of water which is located within 4-radial miles of the BFA except for the water from PWD, but is apportioned zero users, based on past use. The remaining population in Cumberland is supplied by private wells [12].

The Town of Plainville, located northeast of the property, has one public drinking water supply. The Plainville Water Department relies on three overburden wells that supply water to an estimated 7,500 residents. The system also includes an inactive overburden well in Plainville. All the wells are located more than 4-radial miles from the BFA. The remaining population of the town is supplied by private wells [53].

North Attleboro, located along the eastern border of the BFA, has a two public water supplies. The North Attleboro Water Department (NAWD) is a blended system consisting of eight wells. The system is comprised of overburden wells that include the Hillman Well, the Kelly Wellfield, the Plainville Wellfield, the Whiting Street Wellfield, and the Adamsdale Well. These wells supply water to an estimated 25,000 residents in North Attleboro. The other public water supply is the Kings Grant Well, owned and operated by the Kings Grant Water Company. This overburden well supplies water to a small residential community of 134 homes or an estimated 360 people. All wells except the NAWD Adamsdale Well, Hillman Well and Kings Grant Well are

located outside 4-radial miles of the BFA. The remainder of the town is supplied water by private wells [13; 14; 16]. For the blended system, the population was apportioned equally to each supply source, since no source contributed more than 40% to the overall system.

The Town of Attleboro, located to the east/southeast of Cumberland, has a blended system supplied by four surface water sources. These sources, Manchester Reservoir, Hopkins Hill Reservoir, Luther Reservoir, and Orrs Pond Reservoir, supply water to approximately 38,000 residents of Attleboro. None of these reservoirs are located along the 15-mile downstream pathway. The remainder of the residents of Attleboro are supplied water from private wells [15].

Seekonk, located south of Attleboro, utilizes a blended system that incorporates three groundwater sources, the McHale Pond Well Site, the Brown Avenue Tubular Wellfield, and the Newman Wellfield. This system supplies water to an estimated 11,500 residents. All the supply sources are located more than 4-radial miles from the BFA. The remaining residents of Seekonk are supplied water from private wells [54].

North Providence, located east of Pawtucket, is supplied water from two adjacent towns. The Smithfield Water Department and East Smithfield Water district combined supply water to an estimated 8,022 residents, and the Providence Water Supply Board supplies water to an estimated 24,071 residents [38; 55; 56]. All public water supplies in Smithfield buy water wholesale from the Providence Water Supply Board. All sources that supply North Providence are located outside of 4-radial miles of the property. Central Falls, also receives public water from the PWD [49]. There are no other public wells in North Providence or Central Falls.

Lincoln, located west of Cumberland, has a public water supply with a main source and three supplemental sources. The main source of water for the Lincoln Water Department is water pumped in from the Providence Water Supply Board. The three supplemental, overburden wellfields, the Manville Wellfield (well Nos. 3, 5, 10), which outside of 4-radial miles, Quinnville Wellfield (well Nos. 1, 6, 9), and the Lonsdale Wellfield (well Nos. 2, 4, 11), are located along the western banks of the Blackstone River and are only used in times of emergencies. Therefore, zero people are apportioned to these wells. An estimated 17,700 residents receive water from the public water supply. The remaining residents of Lincoln receive water from private wells [57]. Table 6 summarizes the public groundwater supply within 4-radial miles of the BFA.

Table 6

Public Groundwater Supply Sources Within 4-Radial Miles of Boulter Farm Area

Distance/ Direction from Site	Source Name	Location of Source[a]	Estimated Population Served	Source Type[b]
0.5 Miles Northeast	Kings Grant Well	North Attleboro	360	Overburden
0.8 Miles Southeast	NAWD Adamsdale Well	North Attleboro	3,125	Overburden
0.8 Miles South	Pawtucket Wells No. 9,8,7	Pawtucket	2,822	Overburden
0.9 Miles South	Pawtucket Well No. 6	Pawtucket	940	Overburden
1.1 Miles Northeast	NAWD Hillman Well	North Attleboro	3,125	Overburden
1.6 Miles West	LWD Quinnville Wellfield (1,6,9)	Lincoln	0	Overburden
1.8 Miles South	Pawtucket Wells No. 3, 2	Pawtucket	1,254	Overburden
1.8 Miles North	CWD Abbot Run Wellfield	Cumberland	0	Overburden
2.3 Miles Southwest	LWD Lonsdale Wellfield (2,4,11)	Lincoln	0	Overburden

[a] Indicates Town in which well is located.
[b] Overburden, Bedrock, or Unknown.
NAWD = North Attleboro Water Department; CWD = Cumberland Water Department
LWD = Lincoln Water Department

[10; 11; 12; 13; 14; 15]

Private groundwater supplies within a 4-mile radius of the property were estimated using equal distribution calculations of U.S. Census CENTRACTS data identifying population, households, and private water wells for "Block Groups" which lie within or partially within individual radial distance rings [18]. The distance to the nearest private well is unknown, but is estimated to be within 0.25 radial miles of the property. Within 4-radial miles, there are an estimated 2,696 people served by private drinking water wells [5; 6; 18; 19; 20; 21; 22]. Within 4-radial miles of the property, approximately 14,321 people are served by groundwater sources [5; 6; 10; 11; 12; 13; 14; 15; 16; 18; 19; 20; 21; 22; 40]. Table 7 summarizes drinking water populations served by groundwater sources within 4-radial miles of the BFA

Table 7

Estimated Drinking Water Populations Served by Groundwater Sources Within 4-Radial Miles of Boulter Farm Area

Radial Distance From Boulter Farm (miles)	Estimated Population Served by Private Wells	Estimated Population Served by Public Wells	Total Estimated Population Served by Groundwater Sources Within the Ring
≥ 0.00 to 0.25	17	0	17
> 0.25 to 0.50	54	0	54
> 0.50 to 1.00	238	7,246	7,484
> 1.00 to 2.00	521	4,379	4,900
> 2.00 to 3.00	840	0	840
>3.00 to 4.00	1,026	0	1,026
TOTAL	2,696	11,625	14,321

[5; 6; 10-16; 18-22; 40; 64]

To date no known on-site monitoring wells have been installed on the property to document observed release to groundwater from sources on the property [4, p. 13]. The BFA is located upgradient of the Wellhead Protection Areas (WHPA) for the Pawtucket Wells 2, 3, 6, 7-9 and the Adamsdale Well [24].

From 1984 to 1986, W&H conducted a hydrogeological study for the MA DEQE in an attempt to determine the source of persistent (since 1980) low level VOC contamination of the NAWD Adamsdale Well. Their study concluded that a low-level VOC plume was present, which was approximately 500 to 1,000 feet wide and generally followed the center and deepest part of the aquifer from north of the Kings Grant Well to south of PWD Well No. 9. A second smaller plume was documented from the Millers River area, south of BFA.

W&H initially considered Boulter Farm Area a probable source of VOC contamination; however, following their study, they reported that BFA did not appear to be related to the identified VOC plumes. The report stated that this did not necessarily preclude the farm from past releases. The report concluded that multiple minor sources of VOCs are a probable cause of the VOC contamination in the Adamsdale Well. VOCs detected in the Adamsdale Well included acetone (35 ppb), methylene chloride (16 ppb), 1,1,1-trichloroethane (1,1,1-TCA) (12 ppb), and small amounts of trans-1,2-dichloroethylene (trans-1,2-DCE), and trichloroethylene (TCE) [7, p. 18]. Available data have shown that the persistent VOC contamination in Adamsdale Well has continued at least until October 1996 [4, p. 20; 43, pp. 1, 2].

LM Nursing Services, Inc., the owners of Lots 362, 364, and 365, retained ERA to perform an environmental site assessment of their property, which at that time was part of the BFA. In June 1987, ERA installed three groundwater monitoring wells at the LM Nursing property. In July 1987, ERA collected three groundwater samples (LM-1 to LM-3). These samples were analyzed for VOCs, and methylene chloride was detected in all three samples and toluene was detected in LM-2. These wells were then resampled in August 1987, and no VOCs were detected.

VOC contamination has also been detected at three of the PWD supply wells (PWD Wells No.1, No.8, and No.9) and the Kings Grant Well. PWD Well No. 1 was closed after TCE was detected at 5 ppb in May 1987. PWD Well No. 9 showed low-level VOC contamination (3.0 ppb chloroform and 3.0 ppb 1,1,1-TCA) in 1983 and PWD Well Nos. 8 and No. 9 showed low level VOC contamination (1-2 ppb) in 1988-1989. From 1993 to present, at least once a year, PWD Wells No. 8 or No. 9 have shown contamination of less than or equal to 1 ppb of 1,1,1-TCA and/or chloroform, from samples collected during the year [23]. VOCs were detected in the Kings Grant Well in 1980 and 1984 (dichloroethane, 1,1,1-TCA, and TCE), but have not shown contamination since [7, p. 8].

For the purpose of this investigation, none of the above mentioned wells that have exhibited VOC contamination will be evaluated as impacted by BFA, since they are located greater than 0.5 radial miles from the property, there is a lack of reference wells during sampling events, and there is no indication of a release of hazardous substances from on site sources to groundwater beneath the property, due to the lack of on-site monitoring wells.

START did not perform groundwater sampling as part of the BFA property SIP. Based on analytical results from the nearest target wells located greater than 0.5-radial miles from the property and the lack of analytical results from groundwater beneath the property, it is believed that groundwater has not been impacted by a release of hazardous substances from sources located on the BFA property.

SURFACE WATER PATHWAY

Runoff on the property drains from the high points to low-lying on-site ponds and wetlands. The water from these ponds discharges via an intermittent brook. The ponds and wetlands are considered a separate watershed (Watershed No.1) because the intermittent brook, which connects the ponds to Millers River is not a permanent surface water body. The ponds are the probable point of entry (PPE) for Watershed No. 1. The mean annual flow rate (flow rate) at the PPE based on drainage basin area is 0.2 cubic feet per second (cfs).

The intermittent brook, when flowing, discharges to Millers River approximately 0.25 miles from the BFA. The location of discharge is the PPE for Watershed No 2. Millers River is a small stream with an estimated flow rate of 2 cfs, based on its drainage basin area. Millers River discharges to Abbott Run about 0.5 miles southeast of the PPE. Abbott Run, based on its drainage basin area, has an estimated flow rate of 50 cfs, flows through Robin Hollow Pond, and Happy Hollow Pond [60]. The flow rate of Abbott Run may be altered by a control gate at the Diamond Hill Reservoir if demand for water is increased. Approximately 2 miles downstream from the

PPE, Happy Hollow Pond discharges to the Blackstone River, which has an estimated flow rate of 796 cfs, based on the upstream U. S. Geological Survey (USGS) gaging station at Manville, and the drainage basin area of the Blackstone River 2 miles upstream of the convergence [59]. Approximately 4 miles downstream from the PPE, the Blackstone River discharges into the Seekonk River, where its flow rate is estimated at 846 cfs. The Seekonk River, in turn, discharges to the Providence River approximately 8 miles downstream of the PPE. The 15-downstream mile pathway ends along the Providence River about 1 mile downstream of Conimicut Point [7, p. 8; 26, p. 3]. The flow rate cannot be estimated for the Seekonk and Providence River because they are coastal tidal areas and are tidally influenced [35].

The Pawtucket Water Department maintains a surface water drinking water intake at Happy Hollow Pond, which supplies roughly 108,984 people in Pawtucket, Cumberland, Central Falls, and Valley Falls [10; 11]. All the water bodies in Watershed No. 2 are known fisheries. The Blackstone River and Abbott Run are stocked with trout [27; 28]. Abbott Run, Happy Hollow Pond, and Robin Hollow Pond are classified as Level A surface water, the Blackstone River is classified as Level B1 surface water, and the Seekonk and Providence Rivers are classified as Level SB1(a) surface water by RI DEM. Level A surface water is defined as a source of public drinking water supply, areas of primary and secondary contact recreational activities, a designated fish and wildlife habitat, and should have good aesthetic value. Surface waters classified as Level B1 are considered areas of primary and secondary contact recreation and fish and wildlife habitats, and still have aesthetic value. Level SB1(a) waters are saltwater bodies have the same qualifications as Level B1, but there are restrictions on primary contact recreation, shellfishing, and fish and wildlife habitat due to combined sewer overflows in the area [28, pp. 11-13; 39]. Table 8 summarizes information on length of reach, flow rates, and wetland frontage for the 15-downstream mile pathway.

Table 8

Surface Water Bodies Along the 15-Mile Downstream Pathway from Boulter Farm Area

Surface Water Body	Descriptor[a]	Length of Reach (miles)	Flow Characteristics (cfs)[b]	Length of Wetland Frontage (miles)
Watershed No. 1				
Pond No. 1	Minimal Pond	0	0	< 0.1
Pond No. 3	Minimal Pond	0	0	< 0.1
Pond No. 4	Minimal Pond	0	0	< 0.1
Watershed No. 2				
Millers River	Minimal Stream	0.50	2	0
Abbott Run (Including Robin Hollow and Happy Hollow Ponds)	Small to Moderate Stream	1.5	50	< 0.1
Blackstone River	Moderate to Large Stream	2.0	846	0
Seekonk River	Coastal Tidal Waters	4.0	NA	0
Providence River	Coastal Tidal Waters	7.0	NA	0

[a]Minimal stream < 10 cfs. Small to moderate stream 10-100 cfs. Moderate to large stream > 100-1,000 cfs. Large stream to river > 1,000-10,000 cfs. Large river > 10,000-100,000 cfs. Very large river > 100,000 cfs. Coastal tidal waters (flow not applicable). Shallow ocean zone or Great Lake (flow not applicable). Moderate depth ocean zone or Great Lake (flow not applicable). Deep ocean zone or Great Lake (flow not applicable). Three-mile mixing zone in quiet flowing river 10 cfs or greater.
[b]Cubic feet per second.
NA = Flow rate not applicable for coastal tidal waters.

[8, p. 14; 26, p.3; 29; 30; 31; 32; 33; 35; 60]

Each of the surface water bodies located along the 15-downstream mile pathway are protected under the Clean Water Act [39]. There are no habitats for endangered or threatened species located along the 15-downstream mile pathway [34]. Table 9 summarizes all the sensitive environments along the 15-downstream mile pathway.

Table 9

Sensitive Environments Along the 15-Mile Downstream Pathway from Boulter Farm Area

Sensitive Environment Name	Sensitive Environment Type	Surface Water Body	Downstream Distance from PPE (miles)	Flow Rate at Environment (cfs)[a]
Watershed No. 1				
Pond No. 4	Clean Water Act	Pond No. 4	0	0.225
Pond No. 4	< 0.10 miles wetlands	Pond No. 4	0	0.225
Watershed No. 2				
Millers River	Clean Water Act	Millers River	0	~ 2.21
Robin Hollow Pond Wetlands	< 0.10 miles of wetland frontage	Robin Hollow Pond	0.55	~ 50.04

[a] Cubic feet per second

[8, p. 3; 29; 30; 31; 32; 33; 35; 58; 60]

In 1985, RI DOH collected and analyzed a single surface water sample from the intermittent brook west of the auto salvage yard. The sampling results detected the presence chlorinated solvents.

In 1989, RI DEM conducted a SSI of the property. RI DEM personnel collected a total of four surface water samples (SW-1 to SW-3Dup), and four sediment samples (SD-1 to SD-3Dup). *Surface water samples SW-1 through SW-3 were collected from Pond Nos. 1, 3, and 4 respectively and analyzed for VOCs, metals, and TOC.* The samples collected from Pond No. 1 (SW-1 and SD-1) were the upgradient reference samples. The only contaminant detected was in surface water sample SW-3Dup, in which methylene chloride was detected at 3 parts per billion (ppb). None of the downstream sediment samples had detectable levels of oil & grease, pesticides, PCBs, and metals [7, p. 5].

Following the SSI sampling activities, LM Nursing Services, Inc., the owners of Lots 362, 364, and 365, retained ERA to perform an environmental site assessment of their portion of the BFA. In July 1987, ERA collected one surface water sample from Pond No. 4 (SWLM), downstream from the sources on the property. This sample was analyzed for VOCs, and only methylene chloride was detected. No additional surface water sampling was conducted as part of this study.

On 8 May 1995, four surface water samples (SW-01 through SW-04) were collected by RI DEM personnel as part of their site monitoring program. The samples were analyzed for VOCs, SVOCs, pesticides/PCBs, and 13 Priority Pollutant metals, but only one contaminant was detected. Sample SW-04, collected from the intermittent brook, contained lead at 66 ppb. No reference sample was collected during this sampling round [41, pp. 1, 2, 7, 12, 17, 22, 27, 32, 37; 42].

Surface water samples are regularly collected at Happy Hollow Pond by PWD personnel and analyzed for VOCs, SVOCs, metals, inorganics, and bacteria as part of their on going water quality monitoring program. The analytical results of these samples do not show any contaminants that are attributable to BFA [23].

It is unlikely, based on previous sampling events, that hazardous substances from sources on the property discharge to surface water by overland flow and contaminated groundwater discharging to surface water. Substances detected in sources on the property have been detected in surface water and sediment samples downstream of these sources, but due to the lack of quality control, reference samples, and the low concentrations of substances detected, these two samples have been discounted.

START did not collect surface water or sediment samples as part of the BFA property SIP. Based on analytical results from previous surface water and sediment sampling conducted on the property and downstream, the surface water on the property and downstream has not been impacted by a release of hazardous substances from the property.

SOIL EXPOSURE PATHWAY

BFA is surrounded on its northern, eastern, and western sides by forest and its southern side by a residential area located on Curran Road. A single residence borders the property and four other residences are within 200 feet of the property. Currently, there are six full-time workers at the property, who work for Advanced Auto Recycling Inc. The property is fenced along portions of the southern boundary, but approximately 650 feet north of Curran Road, the property is accessible to pedestrians. BFA is an attractive area for teenagers, children, hikers, dirtbike and ATV riders. START personnel observed tree forts, areas of campfires, dirtbike tracks, trails, and dozens of areas with piles of beer bottles and cans, suggesting recreational use [4, pp. 1, 2, 10, 11, 12]. There are an estimated 195 people living within a 0.25-mile radius, and an estimated 4,192 people living within a 1-mile radius of the property [4; 5; 6; 17; 19; 20; 21; 22].

In April 1987, RI DEM personnel collected a total of 10 soil samples (SS-1 to SS-10), of which, at least five samples were collected between 0 to 2 feet deep. Soil samples were analyzed for VOCs, pesticides, PCBs, and metals. PCBs, and lead were detected at elevated levels in a sample collected from the solid waste dump (SS-1) and cadmium was detected above the reference sample detection limit in samples collected from the Former Acid Drum Storage Area (SS-8 and SS-8DUP). Details regarding the analytical results for the surface soil samples collected during the SSI are included in the Waste/Source Sampling section of this report.

On 8 May 1995, four shallow soil samples (SS-01 through SS-04) were collected by RI DEM personnel as part of their site monitoring program. The samples were analyzed for VOCs, SVOCs, pesticides/PCBs, and 13 Priority Pollutant metals. PCBs, copper, lead, and nickel were all detected at elevated levels in a shallow soil sample collected from Lagoon No. 1. Details regarding the analytical results for the surface soil samples collected during the RI DEM site monitoring program are included in the Waste/Source Sampling section of this report.

START did not collect shallow soil samples as part of the BFA property SIP. Based on available shallow soil sampling data, the most recent collected in 1995, a release of hazardous substances to shallow soil has been documented. Based on conditions observed by START, including evidence of trespassing by the nearby resident population, impact to the nearby residential population is believed to be moderate to high.

AIR PATHWAY

BFA is surrounded on its northern, eastern, and western sides by forest and its southern side by a residential area located on Curran Road. A single residence borders the property and four others are within 200 feet of the property. Currently, there are six full-time workers at the property, who work for Advanced Auto Recycling Inc. [4, pp. 1, 2, 10-12]. There are an estimated 109,812 people living within 4-radial miles of the BFA [4; 5; 6; 17; 19-22]. Table 10 summarizes the population located within 4-radial miles of the BFA.

Table 10

Estimated Population Within 4-Radial Miles of Boulter Farm Area

Radial Distance from Boulter Farm Area (miles)	Estimated Population
On a Source	6
> 0.00 to 0.25	195
> 0.25 to 0.50	691
> 0.50 to 1.00	3,306
> 1.00 to 2.00	15,488
> 2.00 to 3.00	33,305
> 3.00 to 4.00	56,827
TOTAL	109,818*

* includes "on a source" full-time worker population.

[5; 6; 18; 19-22]

Approximately 1,313 acres of wetlands are located within 4-radial miles of the property. There are five habitats for state-threatened species and two for state-endangered species located within 4-radial miles of the property [34]. Table 11 summarizes sensitive environments located within 4-radial miles of BFA.

Table 11

Sensitive Environments Located Within 4-Radial Miles of Boulter Farm Area

Radial Distance from Boulter Farm Area (miles)	Sensitive Environment/Species (status)
> 0.00 to 0.25	6 acres wetland
	Clean Water Act
> 0.25 to 0.50	14 acres wetland
> 0.50 to 1.00	Habitat for State threatened species (Geranium bicknelli)
	Habitat for State threatened species (Viola Palmata)
	55 acres wetland
> 1.00 to 2.00	298 acres wetland
> 2.00 to 3.00	439 acres wetland
> 3.00 to 4.00	Habitat for State endangered species (Pellaea atropurpurea)
	Habitat for State endangered species (Panax quinquefolium)
	Habitat for State threatened species (Asclepias quadrifolia)
	Habitat for State threatened species (Caulophyllum thalictroides)
	Habitat for State threatened species (Platanthera hyperborea)
	501 acres wetland

Note: All state listed species are for Rhode Island.

[18; 29-33]

To date no known quantitative air samples have been collected at BFA. During START's reconnaissance, ambient air monitoring was performed with a photoionization detector (PID). Elevated readings were noted inside empty gas tanks and near the bung holes for the 55-gallon drums (200 to 300 units greater than background concentrations); no other readings above background were noted in ambient air [4, pp. 5-7].

START did not perform air sampling as part of the BFA property SIP. No known qualitative air sampling has been conducted on the BFA property. No release of hazardous substances to ambient air is known or suspected, thus not impacting nearby residential populations or sensitive environments.

SUMMARY

The Boulter Farm Area (BFA) is located at 290 Curran Road, in Cumberland, Providence County, Rhode Island. The property encompasses 38 acres and is currently owned by Joseph I. Ferreira, operator of JIF Investment. Mr. Samuel Boulter operated a pig farm at the property in the 1940s. In the 1950s, part of the property was excavated for sand and gravel. In the 1960s, Mr. Boulter demolished and stored junk cars at the property. Mr. Boulter operated a solid waste dump on the property from the late 1960s until 1976. From 1970 to 1976, the solid waste dump was cited numerous times by the Rhode Island Department of Health (RI DOH), Division of Solid Waste Management, for the failure to provide daily cover. Furthermore, in 1970, RI DOH noted the solid waste dump was openly burning demolition waste. The solid waste dump has also been cited by the Massachusetts Department of Health (MA DOH) for solid waste violations.

Currently, a large portion of the property is an automobile salvage yard operated by Advanced Auto Recycling, Inc. The automobile salvage operation produces "minimal" waste, including waste oil, gasoline, antifreeze, and other automotive fluids. Fluids are removed from each vehicle when it arrives on the property, separated, and stored in 55-gallon drums in the northern portion of the automobile salvage yard, stored on the ground surface without cover or secondary containment. Reportedly, once a year, these drums are removed for disposal by Western Disposal of Pawtucket, RI. A dumpster on a concrete bermed pad is used to store waste automobile parts. In addition, a number of potential sources of contamination resulting from previous uses of the property have been identified: former Lagoon No. 1, solid waste dumps, a former acid drum storage area, the former 10,000 and 1,000-gallon ASTs, and acid drums.

The results from two source sampling events indicate that hazardous materials were at one time disposed of to the solid waste dumps, Lagoon No. 1, and the former acid drum storage area. Volatile organic compounds (VOCs), pesticides, polychlorinated biphenyls (PCBs), and metals were detected in source samples. These sources have limited containment features.

Within 4-radial miles of the property approximately 2,696 people are served by private groundwater sources and 11,625 are served by public groundwater sources. There are no monitoring wells on the property. Based on the 0.5 mile distance to nearby public wells, the lack of reference wells during sampling events, and the lack of analytical results from groundwater beneath the property, it is unlikely that groundwater beneath the property is impacted by a release of hazardous substances from sources located on the BFA property.

Runoff on the property drains from the high points to minimal ponds and wetlands. The ponds and wetlands are considered a separate watershed because the intermittent brook which connects them to Millers River is not a permanent surface water body.

The intermittent brook, when flowing, discharges to Millers River, the second watershed. Millers River is a small stream. Millers River discharges to Abbott Run, which flows through Robin Hollow Pond, and Happy Hollow Pond, and discharges to the Blackstone River, the Seekonk River, and finally the Providence River.

The Pawtucket Water Department maintains a drinking water intake at Happy Hollow Pond, which supplies an estimated 108,984 people in Pawtucket, Cumberland, Central Falls, and Valley Falls. Samples collected from the intake show no attributable contamination. The Blackstone River and Abbott Run are stocked with trout, and are known fisheries. Each of the water bodies located along the 15-downstream mile pathway are protected under the Clean Water Act.

Downstream surface water and sediment samples collected in 1989 and 1995 have contained one VOC and one metal, at very low levels. It is unlikely, based on these analytical results that sources on the property have discharged hazardous substances to surface water.

There are an estimated 4,192 people living within a 1-mile radius and estimated 109,812 people living within 4-radial miles of the BFA. A single residence borders the property and four other residences are within 200 feet of the property. Currently, there are six full-time workers, who work for Advanced Auto Recycling Inc. on the property. Approximately1,313 acres of wetlands are located within 4-radial miles of the property. There are five habitats for state-threatened species and two for state-endangered species located within 4-radial miles of the property. No release of hazardous substances to ambient air is known or suspected.

BOULTER FARM AREA
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REMEDIAL SITE ASSESSMENT DECISION - EPA REGION I

EPA ID: RID980672620 **Site Name:** BOULTER FARM AREA (LOTS 363 AND 366) **State ID:**

Alias Site Names:

City: CUMBERLAND **County or Parish:** PROVIDENCE **State:** RI

Refer to Report Dated: 09/29/98 **Report Type:** Site Inspection Prioritization 001

Report Developed by: START

DECISION:

☐ **1. Further Remedial Site Assessment under CERCLA (Superfund) is not required because:**

☐ **1a. Site does not qualify for further remedial site assessment under CERCLA (No Further Remedial Action Planned - NFRAP)**

☐ **1b. Site may qualify for action, but is deferred to:**

☒ **2. Further Assessment Needed Under CERCLA:**

2a. Priority: ☒ **Higher** ☐ **Lower**

2b. Other: (recommended action)

DISCUSSION/RATIONALE:

Groundwater and surface water contamination with potential drinking water targets.

Site Decision Made by: MATTHEW AUDET

Signature: Matthew R. Audet **Date:** 10/06/98

EPA Form # 9100-3